Fig. 7. A rachis-tooth.
Fig. 8. Right side of the neck. *a*, respiratory orifice; *b*, anus.
Fig. 9. Nervous collar. *a*, cerebral ganglia; *b*, pedal ganglia; *c*, parieto-splanchnic ganglia; *d*, azygos ganglion of parieto-splanchnic system.
Fig. 10. One of the pedal ganglia. *a*, auditory vesicle.
Fig. 11. Reproductive system. *a*, ovo-testis; *b*, hermaphrodite duct; *c*, pyriform cæcum; *d*, accessory gland; *e*, albumen-gland; *f*, vas deferens; *g*, oviduct; *h*, penis (retracted); *i*, prostate gland; *k*, vesicula seminalis?; *l*, retractor muscle of penis; *m*, orifice of penis.
Fig. 12. Empty egg-case from a group on the outside of the mantle.
Fig. 13. Spermatozoa.
Fig. 14. Calcareous granule from connective tissue.

XXII.—*On a Collection of Lepidoptera from the Island of Johanna.* By Arthur G. Butler, F.L.S., F.Z.S., &c.

Hitherto next to nothing has been known of the Lepidopterous fauna of the island of Johanna; it is therefore with great pleasure that I have drawn out the following list of species collected there in September last by C. W. Bewsher, Esq.

The collection contains twenty-four species of Butterflies and three of Moths; of these twenty-seven no less than twenty have a strongly marked Mascarene character, whilst fourteen are species found also in Madagascar: only twelve of the species have hitherto been received from Tropical Africa.

Rhopalocera.

Nymphalidæ.

Danainæ.

1. *Danais chrysippus*, Linn.

Papilio chrysippus, Linn. S. N. ii. p. 767 (1766).

Three pairs of this widely distributed species.

Satyrinæ.

2. *Mycalesis fraterna*, Butler.

Mycalesis fraterna, Butler, Cat. Sat. p. 145, pl. iii. fig. 13 (1868).

Two forms of this species occur in about equal numbers, the typical form having the under surface of the wings wholly ochraceous with the outer line of the secondaries distinctly angulated, the second form having the apical and costal regions

of the primaries and the whole of the secondaries more or less suffused with bluish grey, with the outer line distinctly undulated: similar cases of dimorphism have been recorded in other species of *Satyrinæ*. In Madagascar the two forms of *M. fraterna* also occur; but the differences between them are much more strongly marked, and the greyish variety shows even greater modifications in the form of the outer line of secondaries.

3. *Mycalesis anynana*, n. sp.

♂. Dark fuliginous brown, external two fifths of primaries rather paler, limited by a straight transverse line; two round unipupillate black ocelli with pale irides, one small, near the apex, the other four times as large, upon the first median interspace; two dusky submarginal lines; marginal lines black: secondaries with an extremely small ocellus (a mere dot, although with pupil and iris) upon first median interspace; outer border pale, with dark lines as in the primaries. Wings below rather paler, the basal two fifths striolated with dark brown, limited externally by a continuous whitish-bordered dark brown line, convex beyond the cell of each wing; a whitish discal belt enclosing the ocelli; outer border whitish, with zigzag internal margin, intersected by a dark brown submarginal line; marginal line black; a dark brown line crossing the cells, pale-bordered and diverging from the postmedian line upon the primaries, indistinct, not pale-bordered, and almost parallel to the postmedian line on the secondaries: primaries with two ocelli, situated as above but larger, black with white pupil and brown-edged ochreous iris: secondaries with seven small ocelli, the fourth and fifth twice as large as the others. Expanse of wings 1 inch 7 lines.

♀. Larger and paler on both surfaces than the male; the ocellus on the upper surface of the secondaries equal in size to the subapical ocellus of primaries. Expanse of wings 1 inch 8–11 lines.

Four males and two females; the larger female is rather darker than the other, and the markings are not so well defined.

Allied to *M. technatis* of Hewitson.

4. *Panopea Bewsheri*, n. sp.

Nearly allied to *P. Drucei* of Madagascar (Trans. Ent. Soc. 1874, pl. vi. fig. 3), but the third large subapical white spot of primaries elongated, the submarginal series of white spots interrupted in the centre, the white lines close to the margin obsolete; outer margin more concave: secondaries with the

central area white, only tinted with yellow along its outer edge, almost circular, and therefore much smaller than in *P. Drucei*; submarginal spots smaller, lines near the margin wanting. Expanse of wings 2 inches 11 lines.

One male.

Several of the species in this collection which most nearly approach those of Madagascar are constant in their differences; otherwise I should hesitate to regard this as more than a well-marked variety of *P. Drucei*.

5. *Junonia rhadama*, Boisduval.

Junonia rhadama, Boisduval, Faun. Madag. p. 44. n. 4, pl. 7. fig. 2 (1833).

Three males and a female: the males vary somewhat in intensity of colouring and in the black banding of the primaries.

6. *Junonia clelia*, Cramer.

Papilio clelia, Cramer, Pap. Exot. i. pl. xxi. E, F (1779).

Four males and one female; all quite like Natal examples.

7. *Hypanis anvatara*, Boisduval.

Hypanis anvatara, Boisduval, Faun. Madag. p. 56, pl. 7. fig. 5 (1833).

Three males and one female, all typical in coloration.

8. *Atella columbina*, Fabricius.

Papilio columbina, Fabricius, Ent. Syst. iii. 1, p. 148. n. 453 (1793).

Five examples.

Acræinæ.

9. *Telchinia manjaca*, Boisduval.

Acræa manjaca, Boisduval, Faun. Madag. p. 33. n. 9, pl. 4. fig. 6 (1833).

A pair.

10. *Acræa percussa*, Keferstein.

Acræa percussa, Keferstein, Entom. Notiz. p. 13, pl. 1. figs. 1, 2.

A fine female of this beautiful species.

Lycænidæ.

11. *Lampides pulcher*, Murray.

Lycæna pulchra, Murray, Trans. Ent. Soc. 1874, p. 524, pl. 10. figs. 7, 8.

Three males and a female.

12. *Lycæna knysna*, Trimen.

Lycæna knysna, Trimen, Trans. Ent. Soc. 1862, p. 282.

A male and two females, slightly greyer below than Natal examples; one of the females very small, only 8½ lines in expanse.

13. *Deudorix anta*, Trimen.

Deudorix anta, Trimen, Trans. Ent. Soc. 1862, p. 402.

Two males and a female, rather worn.

Papilionidæ.

Pierinæ.

14. *Terias anjuana*, n. sp.

Gamboge-yellow, base of wings black; the primaries with narrow black costal border and moderately broad, internally sinuated outer border; secondaries with a slender black outer border, interrupted at the internervular folds and emitting short black spurs upon the veins (giving it a sinuated character); body blackish. Wings below slightly paler, with an irregular discal series of spots formed of brown atoms; irregular brown-edged silvery discocellular spots: primaries with one or two irregular brown lituræ in the cell: secondaries with three subbasal brown-edged silvery spots, the central one in the cell frequently reduced to a brown dot; veins terminating in black dots. Expanse of wings 1 inch 4–7 lines.

Seven males.

This species is allied to *T. floricola* of Madagascar, but is of a clearer yellow colour (more like *T. hecabeoides*), has the external black border to the primaries much broader at the external angle, and is usually smaller; in other respects it agrees with that species.

15. *Terias decipiens*, n. sp.

Above closely resembling *T. hecabe*, but with the outer border of secondaries as in the preceding species: below similar to the preceding species and *T. floricola*. Expanse of wings 1 inch 8 lines.

One male.

This species differs from the preceding in its slightly superior size and the very dissimilar external black border of the primaries; this border is developed inwards at external angle and bidentate; the postdiscoidal sinuation is well marked, and the bisinuation on the median interspaces twice as deep as in *T. anjuana*.

16. *Terias Bewsheri*, n. sp.

Bright sulphur-yellow: primaries with the costal border of the male dark grey and the margin black; apical area black, beginning in an oblique, internally minutely quadrisinuate line from above the end of the cell, then abruptly angulated and transverse from the last subcostal or upper radial branch to the third median, where it is met by the black outer border forming a deep bisinuation on the median interspaces, slightly notched internally between the first median and internal veins; male with a few black scales at the end of the cell: secondaries with a rather narrow black border: body blackish. Wings below much as in *T. floricola*, but the silvery spots towards the base of secondaries less marked. Expanse of wings, ♂ 1 inch 8 lines, ♀ 1 inch 6 lines.

A pair of this pretty species. It is most nearly allied to *T. solifera* from Angola, but brighter in colour, the female yellow instead of whitish, the black border, particularly on the secondaries, narrower.

17. *Terias brenda*, Doubleday.

Terias brenda, Doubleday, Gen. Diurn. Lepid. pl. 9. fig. 6 (1847).

A single male, slightly smaller than examples from Ashanti, but otherwise identical.

18. *Terias chalcomiæta*, n. sp.

Above quite like *T. senegalensis*; below differing in having a large transverse sigmoidal subapical patch of cupreous brown on the primaries. Expanse of wings, ♂ 1 inch 8 lines, ♀ 1 inch 8½ lines.

A single pair.

19. *Terias dentilimbata*, n. sp.

Above much like *T. senegalensis*, but the angles bounding the median bisinuation of the outer border much more acute; the female decidedly paler; the primaries below with a transverse sinuous subapical dark ferruginous patch. Expanse of wings, ♂ ♀, 1 inch 7 lines.

A pair of this species. Its nearest ally is *T. bisinuata* of Abyssinia; its much paler female and the much more acute angles of the outer border render it improbable that it should be a variety of the preceding species. So far as I am aware, the borders of the wings are not markedly variable in outline; indeed, if such could be proved to be the case, nearly the whole of the species of *Terias* might be sunk.

20. *Catopsilia florella*, Fabricius.

Papilio florella, Fabricius, Syst. Ent. p. 479. n. 159 (1775).

One worn female.

21. *Catopsilia pyrene*, Swainson.

Colias pyrene, Swainson, Zool. Ill. i. pl. 51 (1820-21).

Three males and one female.

22. *Belenois Johannæ*, n. sp.

Allied to *B. elisa*, Vollenhoven (Pollen and Van Dam's Faun. Madag. Ins. pl. 2. figs. 3 ♂, 3 ♀), but the wings above pure white, the oblique black discocellular streak of primaries reduced to a small cuneiform costal spot and a black dot on the lower discocellular, internal limitation of the submarginal spots of secondaries in the male less strongly defined: the borders below reddish clay-coloured; the spots and the whole ground-colour of the secondaries rich cream-yellow. Expanse of wings, ♂ 1 inch 8 lines to 2 inches, ♀ 1 inch 8–10 lines.

Five males and two females.

Papilioninæ.

23. *Papilio demoleus*, Linn.

Papilio demoleus, Linn. Mus. Lud. Ulr. p. 214 (1764).

Three examples.

Hesperiidæ.

24. *Pamphila umbrata*, n. sp.

Allied to *P. borbonica* of Madagascar: dark fuliginous brown with an elbowed discal series of hyaline white spots, the three uppermost only separated by the subcostal branches, the largest at base of first median interspace; male with two hyaline white dots in the cell; palpi white at the sides; anal tuft white tipped with black; centre of pectus and venter white: secondaries below with a white dot in the cell and four or five in a curved series halfway between the cell and the apical margin. Expanse of wings 1 inch 3–4 lines.

One pair in poor condition. The female has broader and rather shorter wings than the male.

HETEROCERA.

Lithosiidæ.

25. *Deiopeia venusta*, Hübner.

Utetheisa venusta, Hübner, Ex. Schm. Zutr. figs. 521, 522.

One female.

26. *Argina astrea*.

Phalæna astrea, Drury, Ill. Ex. Ent. ii. pl. vi. fig. 3.

One typical female and one of the variety named *A. guttata* by Rambur.

Nyctemeridæ.

27. *Leptosoma consors*, n. sp.

Nearly allied to *L. insulare*, Boisduval (Faun. Madag. pl. xii. fig. 1), but the white belt of primaries more oblique, its inferior extremity continued to the outer margin, longitudinal streak less distinctly furcate, border of secondaries broader. Expanse of wings 1 inch 8 lines.

One female.

XXIII.—*On the Bryozoa (Polyzoa) of the Bay of Naples.*

By ARTHUR WM. WATERS, F.G.S.

[Continued from p. 126.]

61. *Cellepora coronopus*, S. Wood.

Madrepore rameux dont les branches rondes sont grainées en dehors, Marsigli, Hist. Phys. de la Mer, p. 143, pl. xxxi. fig. 149, pl. xxxii. figs. 150–152.
Cellepora pumicosa, Linn. Syst. Nat. 12th ed. p. 1286.
Cellepora coronopus, Busk, Crag Polyz. p. 57, pl. ix. figs. 1–3.
Cellepora tubigera, Busk, *loc. cit.* p. 60, pl. ix. figs. 8–10.
Cellepora coronopus, Manz. Bry. Foss. Ital. cont. 4, p. 13, pl. iii. figs. 18, 19.
?*Cellepora tubigera*, Manz. *loc. cit.* p. 14, pl. iv. fig. 25; id. Bri. di Castrocaro, p. 34, pl. v. figs. 60–61.

Zoarium ramose or incrusting; cell-walls thick, smooth; small ascending processes immediately below the aperture or to the side, bearing small rounded avicularia, also very large zoœcial avicularia scattered between the cells. Ovicells prominent, perforated.